

CLAIMS

1. Liquid dispenser, which comprises:

- a body part;
- a cylinder part arranged inside the body part;
- a plunger movably arranged inside the cylinder part;
- means for moving the plunger;

characterized in that the liquid dispenser further comprises:

- a secondary means for causing a speeded up emptying movement of the plunger.

2. Liquid dispenser according to claim 1, wherein the secondary means comprises:

- an energy means, which provides the energy needed by the emptying movement;
- a locking means, which locks the activation of said energy means;
- a launch means, which releases the said activation of the said energy means.

3. Liquid dispenser according to claim 2, wherein:

- the energy means is a spring;
- the locking means is a magnet; and
- the launch means is a mechanical response.

4. Liquid dispenser according to claim 3, wherein the launching means further comprises:

- an actuator shaft with magnetic characters, which has a lower part and an upper part, and which actuator shaft is from its lower part attached to the suction plunger arranged at the lower part of the body of the liquid dispenser, and from its upper part in connection to the magnet, which magnet is connected from its other end to the function plunger directed to the upper part of the body of the liquid dispenser;
- a launch means body, inside of which the upper part of the actuator shaft extends, and where the magnet is arranged;
- a combination, where the spring is arranged to be strained between the launch means body and the actuator shaft;

- a mechanical response, launch pin, arranged in the launch means body, which is from its upper part able to be in contact with a response arranged in the body of the liquid dispenser;
- a function, wherein when the said contact occurs the upward movement in relation to the body of the liquid dispenser is continuable, whereat when continuing the movement the launch pin is arranged to force the actuator shaft apart from the magnet, whereat the spring is arranged to force the actuator shaft into a downward movement.

10 5. Liquid dispenser according to any of the previous claims, wherein the liquid dispenser is an electronic dispenser.

15 6. Liquid dispenser according to any of the previous claims, wherein the liquid dispenser is a multi channel dispenser.

20 7. Liquid dispenser according to any of the previous claims, wherein the liquid dispenser is a hand held pipettor.

25 8. Method for pipetting a sample with a liquid dispenser, comprising the steps of:

- receiving the sample to a tip of the liquid dispenser;
- removing the sample from the tip of the liquid dispenser;

characterized in that

- the removal movement for removing the sample from the tip is performed faster than the suction movement.

30 9. Method according to claim 8, wherein the liquid dispenser comprises a body, a cylinder part arranged inside the body, a plunger movably arranged inside the cylinder part, means for moving the plunger, and secondary means for moving the plunger and to achieve a speeded up movement of the plunger, which method further comprises:

- activating the secondary means which move the plunger;
- receiving the sample; and
- releasing the secondary means which move the plunger to accomplish the secondary movement of the plunger.

10. Method according to claim 9, wherein further the following steps are performed:

- catching the actuator shaft with the magnet; and
- releasing the magnet from the actuator shaft.

5 11. Method according to claim 10, wherein:

- when the magnet is in connection with the actuator shaft, the launching means are moved upwards when receiving the sample;
- when removing the sample the mechanical response gets into contact with a response arranged in the body of the liquid dispenser;
- continuing the upward movement of the launching means until the actuator shaft releases from the magnet;
- forcing with a spring the actuator shaft released from the magnet into a speeded up downward movement for an efficient removal of the sample from the liquid dispenser.